

# High-Level Brief

*Thinking ahead for Europe*

## The Fate of Greece in a ‘Genuine Economic and Monetary Union’: Lessons from a small island state

**Daniel Gros**

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### *A note from the author*

As the Greek debt drama reaches another supposedly decision point, it becomes more and more important to think about the long term. One key question should guide the creditors (and indeed all policy-makers): What would be gained by keeping Greece inside the euro area at ‘whatever it takes’?

The US, with its unified politics and its federal fiscal transfer system, is often held up as a model for the eurozone. It is thus instructive to consider the longer-term performance of an area of the US that has for years been kept afloat by massive transfers, and that is now experiencing a public debt crisis. The entity in question is Puerto Rico, which is an integral part of the US in all relevant economic dimensions (currency, economic policy, etc.).

The accompanying study shows that despite huge federal transfers, which are probably ten times higher than those that Greece has hitherto received, Puerto Rico has in the long run underperformed Greece on some key labour-market and income indicators. Moreover, the government of the island has accumulated a debt which, relative to its revenues, is even higher than that of Greece – although its constitution prescribes a balanced budget.

The fiscal crisis in Puerto Rico has not attracted much attention because state and municipal debt is not that important for the US banking system and because the ‘irreversibility’ of the ‘dollar area’ is not in question.

But the dismal fiscal and economic performance of Puerto Rico carries two lessons:

- 1) Keeping Greece in the eurozone by increasing implicit subsidies in the form of debt forgiveness might create a low growth equilibrium with increasing aid dependency.
- 2) It is wrong to assume that, further integration, including a fiscal and political union, would be sufficient to foster convergence and prevent further problems of the type we experience with Greece.

Daniel Gros is Director of CEPS. He extends many thanks to Matthias Busse and Ilaria Maselli for excellent research assistance.

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## 1. Introduction

It is widely argued that the problems of Greece in the eurozone do not derive only from mistakes made by successive Greek governments, but from deep-seated problems with the design of the euro area. The euro area is judged to be incomplete because it does not have any fiscal shock absorbers nor a federal transfer system. The US, by contrast, is often held up as an example of a complete monetary union which has these features. One example of this view is the 2012 report of the four EU Presidents,<sup>1</sup> which spoke about the goal of a “Genuine Economic and Monetary Union” (GEMU), with a Fiscal and Political Union as the ultimate goal.

However, the workings of the US system are much less perfect than appear from afar. The ‘genuine’ economic and monetary union, which undoubtedly exists in the US, also has problems in dealing with low-performing states in terms of productivity and governance. Puerto Rico exemplifies these difficulties.

The Commonwealth of Puerto Rico, as it is called officially, is a full and integral part of the US. The people living on this Caribbean island are US citizens, use the US dollar and are subject to the US judicial system and law enforcement. US economic policy, including minimum wage rules, apply in Puerto Rico as well. The fact is that there is little difference between Puerto Rico and the other 50 states, except that it has no representation in the US Senate, although it sends one (non-voting) ‘delegate’ to the US House of Representatives ([www.govtrack.us/congress/members/PR](http://www.govtrack.us/congress/members/PR)).

Full formal statehood, however, would bring Puerto Rico little influence on US economic policy since its two senators would give it just 2% of the US Senate (as with any other state) and with its roughly 3.6 million in population, slightly more than 1% of the US House of Representatives.

Puerto Rico is clearly an underperforming part of the US economy. In what one author calls “arrested development” (Devereux, 2014), its income per capita has for some time been below one-half of the US average, with a continuing deterioration over the last 40 years. This simple fact shows that even the ‘genuine’ economic and monetary union of the US does not always deliver convergence in incomes.

Moreover, Puerto Rico also suffered a severe fiscal crisis in 2006. Taken as a whole, this experience implies that one cannot attribute the dismal state of Greece, both in terms of growth and fiscal problems, to the incompleteness of the euro area as a monetary union. The much-admired working of the US monetary and federal fiscal system has actually not prevented Puerto Rico from performing on many accounts worse than Greece. In other words a case like Greece could arise even if the euro were to be transformed in a ‘genuine’ economic and monetary union.

This paper first documents a series of similarities between Greece and Puerto Rico in terms of major economic and social indicators. It then turn to the longer-term structural-growth problem. The role of labour mobility and fiscal transfers,

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<sup>1</sup> “Towards a Genuine Economic and Monetary Union”, by Herman Van Rompuy, then President of the European Council, with José Manuel Barroso, then President of the European Commission, Jean-Claude Juncker, then President of the Eurogroup, and Mario Draghi, President of the European Central Bank, 26 June 2012.

supposedly essential elements of a well-functioning monetary union, are also discussed in sections 4 and 5. Finally, section 6 shows how a sub-central level fiscal crisis unfolds in a monetary union.

## 2. Puerto Rico vs. Greece: Surprising similarities

Greece and PR are comparable on most economic indicators, as shown in Table 1. The Greek population is somewhat larger (10 million against less than 4 million for PR). But in per capita terms many indicators are of a similar order of magnitude. For both countries, GNP or GNI per capita is at about one-half of their respective 'union' average and wages are also somewhat above one-half of their respective union averages.

In terms of unemployment, the absolute numbers are quite different (the unemployment rate in Greece is twice as high as that one in Puerto Rico), but in both cases the national value is over two times higher than the respective union average. The employment rates are almost identical.

Given the large transfers that Puerto Rico receives, it is surprising that its poverty rate at over 45% is much worse than that of Greece (35.7%). In relative terms, the difference is even starker: the poverty rate in Puerto Rico is more than 3 times higher than that of the US, whereas the poverty rate in Greece is 'only' 1.45 times higher than the EU average. Given that the poverty rate has been high in Puerto Rico for a long time, one must conclude that the US GEMU, with its very substantial fiscal transfers, has not prevented a permanent 'humanitarian crisis' on US soil.

More surprising are perhaps the similarities in terms fiscal indicators. The 'State' debt is of course much lower as a percentage of GDP. But the more appropriate comparator would be the debt burden relative to the revenues of the state government.

On this account, Puerto Rico appears even more over-indebted than Greece. The debt burden can be measured either as the stock of debt relative to the revenues of the entity which has to service the debt, or as the share of revenues that are devoted to interest payments. On both accounts, Puerto Rico seems to be worse off. Its public debt is higher relative to government revenues (4.5 times) than that of Greece ('only' 3.87 times revenues) and its government devotes a higher share of revenues to interest payments (13%) than Greece's government does ('only' 8.5%).

Puerto Rico thus appears even more over-indebted than Greece on both accounts. It is therefore not surprising that the ratings of the two are almost identical<sup>2</sup> and that the yield on Puerto Rico's state and state-guaranteed debt is similar to that of Greece. Puerto Rico suffered from a first fiscal crisis in 2006, whose effects seem to linger in the form of doubts about the willingness of its government to service its debt.

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<sup>2</sup> See <http://www.tradingeconomics.com/greece/rating>

Table 1. Economic Indicators: Puerto Rico vs. Greece

	Puerto Rico		Greece	
	National value	Relative to Union average	National value	Relative to Union average
GNP per capita	14,800 USD	0.36	16,200 EUR	0.53
Wages	390 EUR	0.52	434 EUR	0.56
Employment rate	35%	0.76	36%	0.82
Unemployment rate	13.9%	2.28	26.5%	2.28
Public debt/revenues	450% (717%*)		387%	1.92
Interest on state debt/revenues	13% (22%)		8.5%	1.47
Interest rate 10 year (06/2015)	10.5		12	
Rating	CCC/Caa2		CCC-/Caa2	
Governance (WGI corruption)	0.5	1.3 (US value)	-0.1	1.1 (EA average)
Poverty rate	45.4	3.13	35.7	1.45

\* If US grants are excluded.

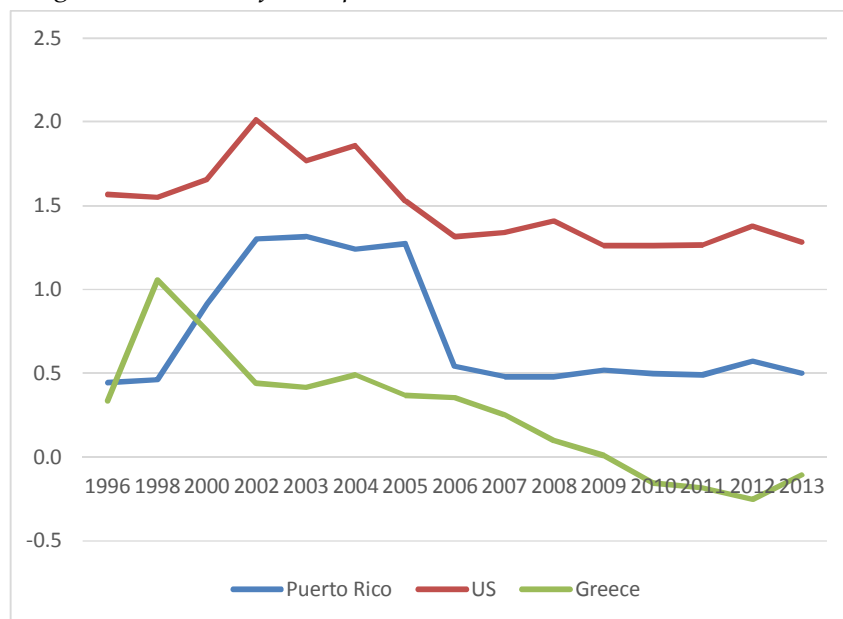
Source: Commonwealth of Puerto Rico, BLS and European Commission, latest data available.

Another uncanny parallel between the two cases concerns the quality of local governance: The available indicators of the quality of governance from the World Bank (World Governance Indicators - WGI) suggests that Greece performs much worse than the rest of the euro area. The same is true for Puerto Rico relative to the US. The indicator for the control of corruption has always been lower for Puerto Rico than the US. But about 20 years ago, Greece was at about the same level as PR (with a value of about 0.5 on the World Bank's WGI scale). Today the value for Greece has sunk to below zero, indicating another large deterioration, whereas that for PR is still at its previous level. This large difference within the 'legal union' of the United States is not merely due to a difference in perception. Hard data show a similar picture. On a per capita basis, there are many more cases of corruption of public officials in PR than in the rest of the US. Over the last five years, there were five times as many cases in PR than in the rest of the US. No other US state had a similar performance.

Other indicators give a similar picture. For example, under the 'Ease of Doing Business' of the World Bank the US is placed number 4 globally, but Puerto Rico number 43. This is astonishing since the island is an integral of the US legal, judicial and administrative system as mentioned above.<sup>3</sup>

<sup>3</sup> For more detail see Federal Reserve Bank of New York (2012).

Figure 1. Control of corruption index: Puerto Rico, US and Greece



Source: World Governance Indicators, World Bank.

In terms of openness to international trade Puerto Rico appears very different since exports account for a much higher share of GNP. But a closer look (see box below) reveals that most of the exports from the island (chemicals and medical equipment) contain very little value added and that the contribution of the export sector to the economy is minor.

*Openness: much less than meets the eye*

At first sight, there appears to be one major difference between Greece and Puerto Rico: The Commonwealth is a major exporter of manufacturing products. Exports of goods are worth almost 100% of GNP, suggesting a very open economy (compared to less than 15% for Greece).

However, closer inspection reveals that most of these exports contain very limited local value added. A first indication that this is the case can be gleaned from the fact that the most important import categories are the same as those on the export side, as shown in the table below. The most egregious case is that of chemicals, with imports amounting to over a quarter of GNP and exports over three-quarters of GNP.

*Puerto Rico: Goods trade by major product category (2014) in millions of USD*

	Exports	Imports
Food and agriculture	2,481	3,901
Petroleum and coal products	604	4,645
Chemicals	48,146	17,999
Machinery	862	1,096
Computer and electronic products	1,687	2,262
Electrical equipment, appliance,	1,114	919
Medical equipment and supplies	5,693	NA (ca. 1,750)
Other	1,870	8,276
Total	62,457	42,475.6

Source: Commonwealth of Puerto Rico, Government Development Bank.

One can have a more precise indication of the local importance of trade by looking at employment and wages in the sectors which account for most of the trade activity (in goods). Manufacturing (which must be the source of all goods exports) accounts for only less than 10% of all employment, which immediately implies that the export industry employs only a small fraction of the total work force. This means that the trade figures must greatly overstate the importance of exports for the local economy (unless wages in manufacturing are several times higher than in the rest of the economy). Manufacturing contributes 45% of national value added, but most of this value added consists of the cost of capital and profits, both of which go to the mainland owners of the exporting industries.

Two specific examples can illustrate this phenomenon. The most important export (and import) product category is chemicals. But the chemical industry (mostly pharmaceuticals) plays only a very limited role for the local economy. Total employment in this sector amounted in 2013 to ca. 15,000 workers with an average annual wage of about \$44,000. This implies that the total annual wage bill amounts to about \$660 million, or only 1% of GNP (0.66 % of GDP). This value is not much different from the average for the entire US. It is thus clear that the value added, which remains on the Island, from the export of chemicals cannot be much above 1% of GDP, since the profits belong to the mainland and other multinational firms who own the plants (and most of these profits are exempted from taxes).

A similar calculation can be made for another major export category, namely electrical equipment and appliances. This sector employs only about 5,000 workers (out of a work force of over 1 million) with an average annual wage (for the sector) of about \$39,000. This implies that the total wage bill is somewhat below \$200 million or 0.3% of GNP (or 0.2% of GDP). This is another sector in which low value-added assembly operations have had little impact on the local economy. A similar calculation can be done for another sector that looms relatively large in the export statistics, computers and electronics.

See [www.trabajo.pr.gov/pdf/Estadisticas/2013/CES/Publicación%20Censo%202013.pdf](http://www.trabajo.pr.gov/pdf/Estadisticas/2013/CES/Publicación%20Censo%202013.pdf), p. 10 and 33.

### 3. The longer-term problem: Arrested development

Fiscal problems are often only the most visible sign of a dysfunctional economy. Puerto Rico is no exception to this rule.

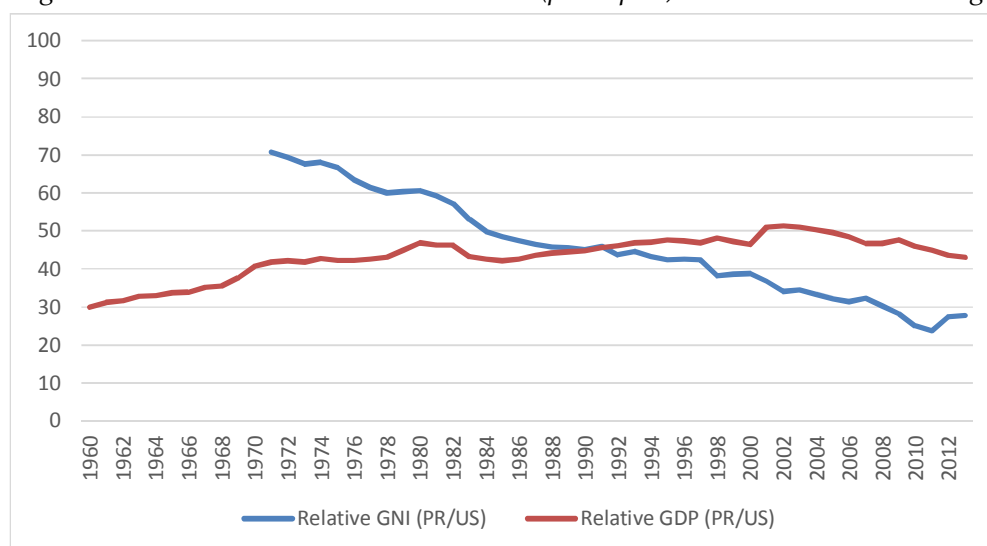
The broad trends can be seen from Figure 2 below. Income per capita of Puerto Rico was less than one-fifth of the US when its constitution was enacted shortly after World War II. Over the next quarter of a century, it then rose to about one-third. But around 1973, the catching up stopped. Relative GDP held up, but the more relevant national (GNP) product started to fall on a per capita basis relative to the US average. The unusually large difference between GDP and GNP growth was due to the heavy investment in highly capital-intensive pharmaceutical plants, which took advantage of huge tax subsidies (Art. 326 of the US Tax Code). However, little of the value added created in these plants remains on the islands. The near total exemption from taxes means that the local government does not benefit,<sup>4</sup> and these plants do not employ much local labour. According to Collin et al. (2006), the share of payroll in local value added is less than 10% for all the major manufacturing industries in Puerto Rico. The data on the chemicals industry presented in the box above confirms that in this sector

<sup>4</sup> Moreover, as discussed below, enterprises in Puerto Rico pay almost no federal tax.



the tax shifting must have been extreme given that the total wage bill of this sector (whose exports amount to 70-80% of GNP) is only about 1% of GNP.

Figure 2. Puerto Rico: Real GDP and GNI (per capita) relative to the US average



A period of rapid growth followed by a sharp slowdown is often the prelude to fiscal problems because the rapid growth period fosters unrealistic expectations in terms of income and consumption growth. Moreover, high growth rates also imply a high debt-carrying capacity for the state. As with Puerto Rico until the mid-1970s, this was also the case of Greece and other peripheral countries during the boom years after the introduction of the euro. As documented in Alcidi & Gros (2010), growth rates exceeded interest rates by a wide margin until 2007-08. But growth rates then plummeted and interest rates increased, making the situation difficult for all and unsustainable for Greece. Puerto Rico is facing a similar situation today with the interest rate it is paying (close to 8%) much higher than its growth rate.

There were of course attempt to revive growth in Puerto Rico during the 1980s and afterwards. Sweeping tax breaks were supposed to create a strong industrial base, but the strategy of fostering a local manufacturing base via tax subsidies did not work. Puerto Rico briefly even had a computer parts industry, but employment there fell from 20,000 at the end of the 1990s, just before NAFTA, to less than 5,000 today.

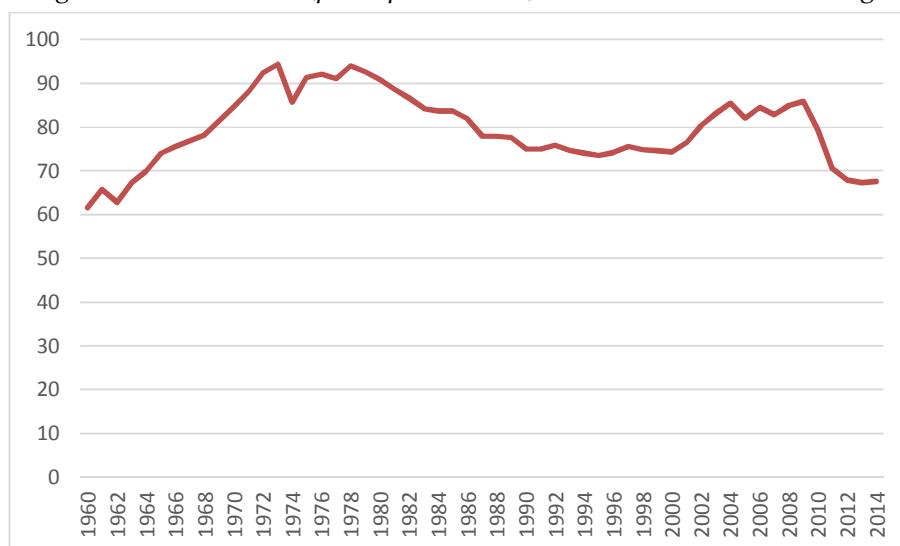
Devereux (2014) concludes: "The broad pattern remains the same no matter which versions of income or which states we examine: Puerto Rico made substantial progress towards catching up with the US and the poorest states from the 1950s to the mid-1970s, and since then it has stagnated or fallen further behind." This conclusion was based on the available data on nominal income. More recent data from the World Bank on real income show an even worse picture (see below): Since the early 1990s, real GNI (i.e. income per capita) has fallen by about one-half, from about 70% of the US average to about 35%. GDP kept increasing until the early 2000s, due to the tax subsidies for

mainland investment by pharmaceutical industries (whose profits are in Puerto Rico GDP, but not in GNP).<sup>5</sup>

In terms of the desirable degree of integration of economic policy in a monetary union it is interesting to note that the catching up process stopped around the time the US minimum wage was extended to Puerto Rico. According to Freeman (1991), this had a significant impact on local employment, but no study has yet linked the minimum wage to long-term relative growth rates in a systematic manner. The decline in relative GNP coincided also with the start of the tax benefits under Article 326, but this resulted mainly in an increasing divergence between GDP (which continued to grow) and GNP (which fell relative to the US). The end of the phasing out of these tax benefits (in 2006, i.e. 10 years after the decision to end 326 in 1996) coincided with the beginning of the crisis in Puerto Rico although the rest of the US was still booming at that point in time.

Greece has actually performed much better than Puerto Rico (or rather not as bad), if one considers a longer time trend. Its national income relative to the euro-area average is shown in Figure 3 below. Greece's catch-up process also came to a halt, but somewhat later (in the early 1980s) and the subsequent decline has been slower (and was interrupted by the boom following euro membership).

Figure 3. Greece: GNI (per capita at PPP) relative to euro-area average



Source: AMECO database, European Commission.

#### 4. Labour mobility

Since Mundell (1961), a sufficient degree of labour mobility is taken to be a necessary condition for a well-functioning monetary union. However, labour mobility can be two-edged sword in terms of its fiscal impact: in a country with high unemployment (and a high debt level) emigration might constitute a social safety valve and the

<sup>5</sup> Remittances of migrants to the mainland might also have increased in absolute value, but they would not be part of GDP. The decline of GNI relative to GDP suggests that the importance of remittances has fallen over time.

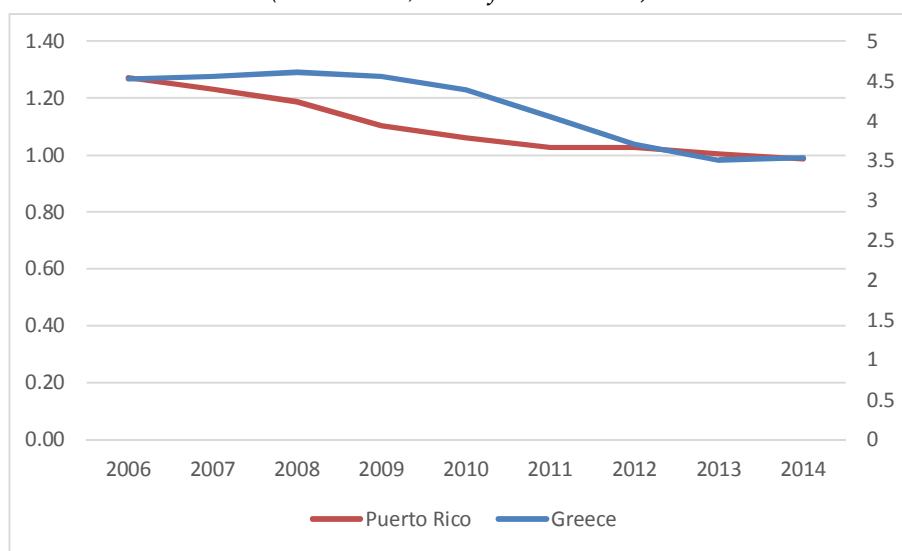


government might gain when unemployed find a job abroad as this lowers domestic unemployment benefit claims and other social security expenditure. But a permanent reduction in the labour force will over time weaken the capacity of the state to service its debt. The case of Puerto Rico shows the (limited) importance of both elements.

Labour mobility is clearly higher within the US. Since the start of the fiscal crisis in 2006 rates of emigration have increased noticeably with net emigration reaching a peak of almost 2% of the population in 2006. Emigration has continued at more than 1% since then (the only exception being 2009, when there was a deep recession in mainland US). By contrast, in Greece the net emigration rate has not gone above 0.5%, even with a much larger decline in income and a much higher unemployment rate. As a consequence, the resident labour force has declined. This is the reason why the unemployment rate has never gone above 20% and is now declining to low two-digit values although employment in Greece has not declined more than in Puerto Rico.

Figure 4 shows that if one compares 2006 to today, one finds that employment has fallen by exactly the same proportion in Greece as in Puerto Rico.

*Figure 4. Employment since the financial crisis: Puerto Rico vs. Greece  
(in millions, PR left hand scale)*



Source: Own calculations on European Commission and Commonwealth of Puerto Rico data.

## 5. Fiscal transfers

According to many, this is the key unfinished business for the euro area. It is widely argued (for example, in the above-cited report by the four Presidents) that the euro area needs a fiscal union in order to survive. But if one looks at the case of Puerto Rico, it is difficult to argue that fiscal transfers improve the situation when the real problem is a structural one.

In any federal fiscal system, one has to look at two elements: i) transfers from the Federal budget to sub-federal budgets (e.g. from the US Treasury to the budget of Puerto Rico) and ii) transfers from federal programmes directly to individuals who happen to live in particular states.

For Puerto Rico, both aspects are important: federal transfers constitute a large share of the revenues of the government of the Commonwealth and US federal transfers to individuals constitute an exceptionally large part of local income. This confirms the widely-held notion that the federal fiscal transfer system of the US can be of macroeconomic importance at the level of individual states.

Transfers from the US federal budget to the budget of Puerto Rico constitute over one-third of the total revenues of the Commonwealth authorities. This dependence from the federal budget has increased over time as the share of domestic revenues fell from over two-thirds to 63.6%. In terms of GNP the federal transfers to the budget of Puerto Rico amount to about 7.5%, increasing after the fiscal and economic crisis, which started in Puerto Rico already in 2006.

*Table 2. Budget of the Commonwealth of Puerto Rico*

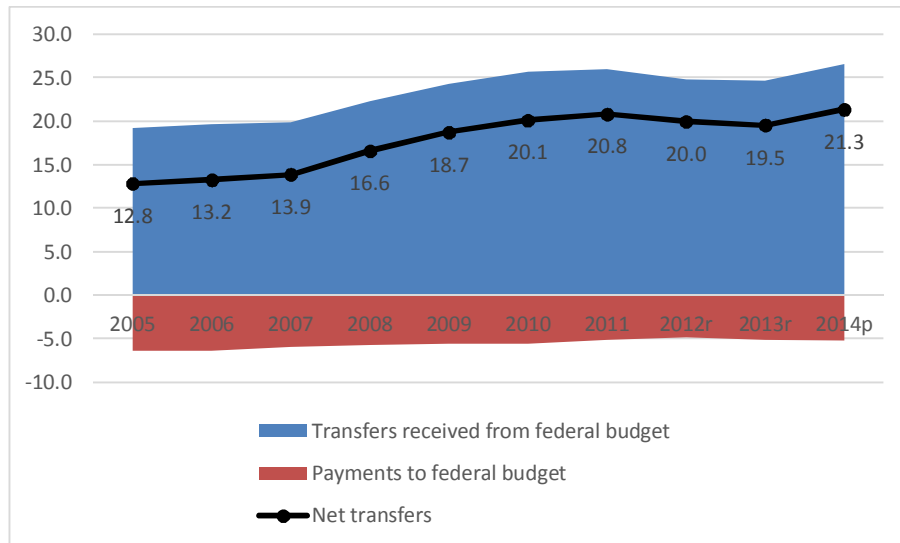
	2005	2014
Total revenues (billions of USD)	12.4	14.8
of which in percent		
Commonwealth	32.6%	36.4%
Non-Commonwealth	67.4%	63.6%
GNP (billions of USD)	54.9	69.2
Non-Commonwealth revenues as % GNP	7.4%	7.8%

## 6. Transfers to individuals

Here Puerto Rico stands out both in terms of the exceptionally low tax payments and the high level of transfers received. The US federal budget amounts to about 20% of GDP in revenues and somewhat more in terms of expenditure. But the values for Puerto Rico are quite different on both sides. The tax and other payments coming from Puerto Rico to the federal budget amount to only 5% of Puerto Rico GNI, versus the close to 20% for the US average. Receipts by individuals and enterprises in Puerto Rico from the federal budget amount to close to 26% of Puerto Rico GNP, again much more than the national average.

Figure 5 below shows that payments (tax and other) to the federal budget have been roughly constant over time (declining marginally over the last years only). Receipts from the federal budget have increased substantially, however, from below 20% to 26% of GNP. The result of these two tendencies has been a very substantial increase in the net receipts from the federal budget from less than 13% of GNP in 2005 to over 21% of GNP in 2014.

Figure 5. Puerto Rico: Payments from and to US federal budget (% of GNP)



Source: Commonwealth of Puerto Rico.

It is difficult to see how a 'fiscal capacity' at the euro-area level would make much of a difference in cases like Greece. In the US, fiscal transfers of over 20% of GDP have not been sufficient to prevent the problems arising in Puerto Rico.

Budgetary subsidies worth another 8% of GDP have also not been sufficient to prevent a public debt crisis, as shown below. The corresponding figure for Greece would be about 3% of GDP if one nets its contributions to the EU budget against the payments to Greek farmers and the expenditure on infrastructure under the Structural Funds.

## 7. The mechanics of a sub-federal public debt crisis

One important criticism of the euro area has been that there is no lender of last resort for euro-area governments (de Grauwe, 2011). This is also true for state governments and municipalities in the US. This implies that the impact of a lack of access to funding can be brutal, as this quote illustrates:

On May 1, 2006, the Puerto Rican government faced significant [shortages in cash flows](#), which forced the closure of the local Department of Education and 42 other government agencies. All 1,536 public schools closed, and 95,762 people were furloughed in the first-ever partial shutdown of the government in the island's history. On May 10, 2006, the [budget crisis](#) was resolved with a new tax reform agreement so that all government employees could return to work. On November 15, 2006, a 5.5% sales tax was implemented. Municipalities are required by law to apply a municipal sales tax of 1.5% bringing the total sales tax to 7%.<sup>6</sup>

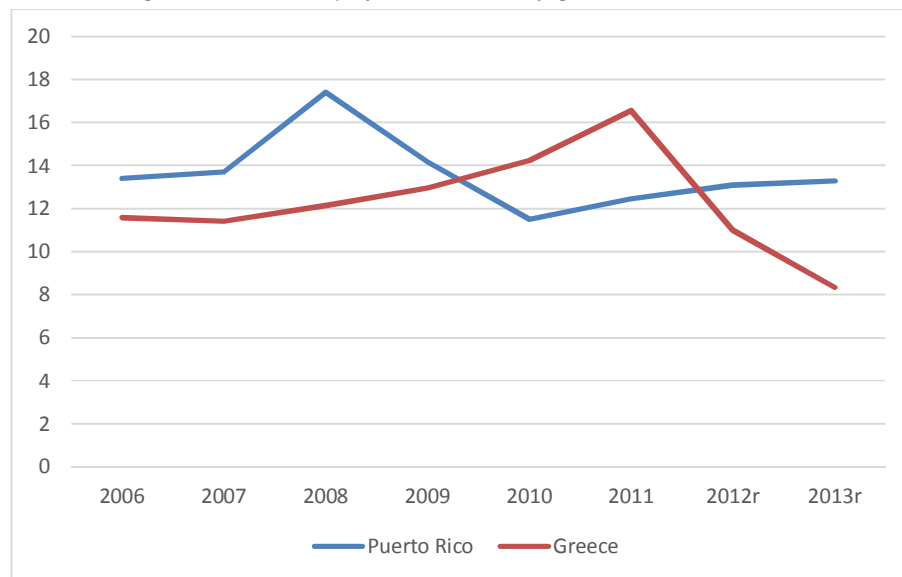
Puerto Rico was not bailed out. When faced with a cash crisis, its government had to take immediate action to restore the confidence of its investors. One might ask what would have been the reaction in Greece if (either today or in 2010) the government had had to fire all the teaching staff and immediately increase sales taxes.

<sup>6</sup> See [https://en.wikipedia.org/wiki/Economy\\_of\\_Puerto\\_Rico#Mining](https://en.wikipedia.org/wiki/Economy_of_Puerto_Rico#Mining) (under Recent Developments).

So far the government of Puerto Rico has preferred to service its debt in full. One reason might be that Puerto Rico has been explicitly prohibited by US law from seeking the protection of Chapter 9 bankruptcy proceedings for municipalities and states.<sup>7</sup> This prohibition has had the effect of increasing the cost of bankruptcy for Puerto Rico, allowing it so far to sell debt at lower rates than other similarly placed states have been able to. Membership of the euro area was also thought to have made public debt safer, allowing Greece to accumulate a higher debt level than would have been possible under the drachma. The current Greek government is asking for some debt forgiveness from its official creditors (but apparently not from the private ones).

Figure 6 shows that in the case of Greece substantial debt relief has taken place through lower interest payments whose share in total government expenditure has halved from about 16% in 2011 to less than 8% today. Puerto Rico, by contrast, has only temporarily benefitted from lower US interest rates, and its government now has to devote about 14% of its revenues to paying interest on its debt.

Figure 6. Interest payments as % of government revenue



Source: Own calculations based on European Commission and Commonwealth of Puerto Rico data.

Puerto Rico, whose fiscal position is even more precarious given the much smaller revenue base of the government of the island, is also pushing for debt relief, but in a different way, namely to be able to avail itself of the protection of Chapter 9 of the US bankruptcy code. A bill to enable this has recently been introduced in Congress by the delegate from Puerto Rico (see [www.congress.gov/bill/114th-congress/house-bill/870/text](http://www.congress.gov/bill/114th-congress/house-bill/870/text)).

The US thus had a procedure to deal with the insolvency of sub-national units, but this procedure is apparently not applicable to the one case where it might now be really be used.

<sup>7</sup> See also [www.aei.org/publication/puerto-ricos-debt-crisis-and-the-siren-song-of-after-the-fact-bankruptcy/](http://www.aei.org/publication/puerto-ricos-debt-crisis-and-the-siren-song-of-after-the-fact-bankruptcy/)

If Puerto Rico were allowed to avail itself of a restructuring under Chapter 9, it would then have to accept the supervision of a federal (US) court, losing most of its sovereignty. It is difficult to imagine that Greece would accept the supervision of, let us say, the European Court of Auditors, over its public finances. This is the key difference between a sovereign and a sub-sovereign debt crisis.

Moreover, the petition for protection against creditors could be denied. Apparently in 1991, the petition for relief filed by the city of Bridgeport, Connecticut, was denied because the bankruptcy court concluded that Bridgeport, although financially distressed, was not insolvent (within the meaning of the eligibility criteria of Chapter 9).<sup>8</sup> This has to be kept in mind, given that the interest burden for Greece is actually lower than that of Italy or Portugal (see De Grauwe, 2015). One could thus argue that a putative European bankruptcy court could declare Greece to be solvent.

The headline fiscal numbers for Puerto Rico appear to be reassuring in that the debt-to-GNP<sup>9</sup> ratio at about 100% does not appear to be excessive by euro-area standards. But a debt should be compared to the income from which it is being served. Hence one should compare the public debt of the Commonwealth not to the GNP of Puerto Rico, but the revenues of the Commonwealth. On this account, the debt ratio looks much worse than that of Greece, as mentioned above, especially if one relates interest expenditure to (annual) revenues.

The stock of public debt is worth 4.5 times the annual (total) revenues of the Commonwealth and it is seven times larger than the revenues that the Commonwealth raises from the Island (the total includes a large amount of transfers from the federal government). For Greece public debt is worth less than four times annual revenues, very little of which comes from the EU since most EU transfers go directly to individuals.

The ratings agencies seem to have adopted a similar point of view, assigning Puerto Rico almost the same rating as Greece. The interest rate (premium for government bonds) is also similar (see Table 3).

*Table 3. Fiscal position and market indicators 2014-15*

	<b>Puerto Rico</b>	<b>Greece</b>
Public debt/revenues	450% (717% only domestic revenues)	387%
Interest on state debt/revenues	13% (22% only domestic revenues)	8.5%
Interest rate 10-year (06/2015)	10.5	12
Rating (06/2015)	CCC/Caa2	CCC-/Caa2

*Source:* Own calculations based on data from the Commonwealth and European Commission.

<sup>8</sup> See [https://en.wikipedia.org/wiki/Chapter\\_9,\\_Title\\_11,\\_United\\_States\\_Code](https://en.wikipedia.org/wiki/Chapter_9,_Title_11,_United_States_Code), for details see <http://business-finance-restructuring.weil.com/chapter-9/bridgeport-%E2%80%93-distressed-but-not-insolvent/#axzz23Dly2TDy>

<sup>9</sup> The Maastricht criteria relate debt to GDP. But this is not appropriate since governments can tax only the income of national factors of production (GNP), not GDP. For most euro area countries, including Greece, the difference between GDP and GNP can be neglected. The only exception to this in Europe is Ireland.

It is surprising that Puerto Rico has become so over-indebted given that its constitution says that its *“budget has to comply with the principle of a ‘balanced budget’”*.<sup>10</sup> Most surveys of balanced budget amendments among US states list Puerto Rico as one of them.<sup>11</sup> It had been widely assumed that these balanced budget amendments, which were adopted by around 40 states following a wave of costly bankruptcies in the early part of the 19<sup>th</sup> century, would prevent an accumulation of public debt. This assumption had been behind the Fiscal Compact in Europe, which was adopted only recently, and forced all euro-area member countries to adopt such budget balance rules. But the case of Puerto Rico shows that even self-imposed rules offer little protection against over-spending.

The key difference between Puerto Rico and Greece is of course the impact of the fiscal crisis on the banking system. In Puerto Rico the fiscal crisis has had limited impact on the local banking system, which in any event is not exposed to its own ‘sovereign’. Even more important, however, is the full Banking Union of the US, with its powerful bank rescue institutions and the prevalence of large, nationally integrated banks. Gros (2012) has emphasised the stabilising property of a Banking Union with an integrated banking system. In the euro area, the insolvency of a sovereign is always linked at least partially to the stability of the banking system. The main reason might no longer be large holdings of government debt. What remains is the possibility of a national government to exit the euro area. This makes a bank deposit at a Greek bank inherently vulnerable to a bank run. Moreover, a ‘PRexit’ is not on the table, thus removing another source of uncertainty.

## 7. Concluding remarks

The main purpose of this contribution has been to illustrate that even in the US, which is usually held up as model for Europe on how a ‘genuine’ economic and monetary union should work, dysfunctional parts of the Union can get into a combination of long-term economic underperformance and fiscal crisis. The performance of Puerto Rico in terms of under-employment and poverty is even worse than that of Greece despite (some would say because of) the huge fiscal transfers the Island receives.

Policy-makers in Puerto Rico have a very limited freedom of manoeuvre in terms of economic policy since their Commonwealth is part of the US (the last independence movement was put down by the US military in the late 1940s). It is thus difficult to argue that a ‘political union’ or a centralisation of economic policy-making can prevent regional failures of this kind. The Greek case should thus not be ascribed to the imperfections (which doubtlessly exist) of the euro area, but rather to a combination of a weak economic fundamentals and local fiscal excesses.

There are no easy solutions.

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<sup>10</sup> See [www2.pr.gov/presupuestos/RecommendedBudget2014-2015/Informacin%20General/Budget%20Process.pdf](http://www2.pr.gov/presupuestos/RecommendedBudget2014-2015/Informacin%20General/Budget%20Process.pdf)

<sup>11</sup> See the official one from the association of state legislators: [www.ncsl.org/research/fiscal-policy/state-balanced-budget-requirements.aspx](http://www.ncsl.org/research/fiscal-policy/state-balanced-budget-requirements.aspx)



Greek policy-makers seem to be tempted to try a variety of 'unorthodox' policies. The latest fad is the 'Icelandic model', consisting of a selective default on foreign creditors combined with a huge devaluation and capital controls. The appeal of this 'model' can be explained by the fact that Iceland has recovered from its severe financial crisis and is growing well, but its recovery was due to the strong performance of its two main export products: fish and energy (in the form of aluminium). Fish exports were strong after 2008, as global climate change pushed the schools of herring further north into Icelandic waters, and aluminium exports could increase after the completion of major hydropower projects. No similar push factor for Greek exports is in sight. Moreover, Iceland did not default on its official creditors, only on some private ones. The controversy with the UK and the Netherlands was settled through the courts. Capital controls were very efficiently implemented in a country which has a top ranking in terms of administrative efficiency and control of corruption. Finally, Greek policy-makers would do well to remember that part of the Icelandic model was a fiscal adjustment with a primary surplus of over 5% of GDP in 2014 (and over 3% of GDP this year). Moreover, despite its much-heralded default, the Icelandic government pays a higher share of its GDP in interest than the Greek government does.

If Greece were to choose the option of default and exit from the euro, the Argentine model seems to be more likely scenario to materialise. At first, the combination of default and devaluation seemed to be successful, but this was due to a surge in the prices of the principal exports of Argentina: wheat and oil. But a succession of populist governments managed to squander this windfall, bringing the country back again to the brink. Iceland cannot be copied without fish and an exceptionally law-abiding society and Argentina without oil would be a disaster. There is a reason why unorthodox policies have remained so: in most cases, they do not work.

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